

REMARKS

Claims 1-12 are now present in this application.

The specification and claims 1 and 2 have been amended and claims 11 and 12 have been presented. Reconsideration of the application, as amended, is respectfully requested.

Claims 1-10 stand rejected under 35 USC 102(e) as being anticipated by Ahne et al., U.S. Patent 6,637,853. This rejection is respectfully traversed.

The patent to Ahne et al. discloses a faulty nozzle detection in an ink jet printer by printing test patterns and scanning with a fixed optical sensor. In the present invention, a method and apparatus for detecting faulty nozzles applied to a multi-function peripheral (MFP) are disclosed. The method is to print a predefined test pattern by an inkjet component of a printing unit. A scanning unit connecting with the printing unit scans the predefined test pattern to generate an image data of the predefined test pattern. Afterwards, an analyzing unit analyzes the image data of the predefined test pattern to see if any one of the nozzles is clogged. Finally, the analyzing unit reports the result to the printing unit. The printing unit will avoid using the clogged nozzles during the printing process to improve the quality of printing.

The Ahne et al. arrangement, however, is directed to an apparatus for detecting faulty nozzles in an ink jet printer which includes an ink jet print head having a plurality of ink jet nozzles disposed adjacent a print medium. The print head prints a reference image on the print medium formed by ink droplets ejected from many of the nozzles. The print head also prints individual test images corresponding to each nozzle by ejecting ink droplets from each of the nozzles separately and sequentially. A print head scan mechanism scans the print head in a first

direction relative to the print medium as the test images are printed. A print medium advance mechanism moves the print medium in a second direction between the printing of the reference image and the printing of the test images, where the second direction is orthogonal to the first direction. In this manner, the apparatus leaves nonprinted areas on the print medium between the reference image and the individual test images. A fixed optical sensor detects light reflected from the print medium and generates a sensor signal based thereon. The sensor signal indicates a first state when the sensor detects light reflected from a test image or from the reference image, and a second state when the sensor detects light reflected from a nonprinted area. When the optical sensor is adjacent a test image portion and the sensor signal does not indicate the first state, the processor generates a fault signal.

The technical feature recited in the Ahne et al. patent is similar to Patent 6,325,331 noted in the background of the present application. A set of optical scanning apparatus is arranged on the side of the print head carrier. When performing the calibration before printing, the printer first prints a test pattern on paper. The optical scanner detects the test pattern (as a beam will be reflected from the test pattern once it is emitted from the optical scanner). Afterwards, the method uses the reflected signal received from the optical scanner to determine whether any nozzle is clogged or damaged. In such case, an optical apparatus has to be installed beside the carriage. This can be redundant and costly especially in a multi-function peripheral.

In the present application, however, the image data is stored in the memory unit. The analyzing unit analyzed the image data of the predefined test pattern. If there is any clogged or damaged nozzle in the inkjet component, the corresponding block is blank. Finally, the analyzing module sends the result back to the printing unit so that it will avoid using the faulty nozzle in

future printing. The quality of printing can thus be enhanced. Apart from independent claims 6 and 6, the dependent claims further distinguish the present invention from the utilized prior art. For example, dependent claims 11 and 12 emphasize the feature of a single scanning unit versus the multiple units with each of the nozzles in the Ahne et al. reference.

Nonetheless, the features mentioned in the independent claims of the present application are different from the disclosure of Ahne et al. It is respectfully submitted that the Ahne et al. patent would neither suggest nor render obvious the claims of the present application. Accordingly, reconsideration and withdrawal of the 35 USC 102(e) rejection are respectfully requested.

Favorable reconsideration and an early Notice of Allowance are earnestly solicited.

Because the additional prior art cited by the Examiner has been included merely to show the state of the prior art and has not been utilized to reject the claims, no further comments concerning these documents are considered necessary at this time.

In the event that any outstanding matters remain in this application, the Examiner is invited to contact the undersigned at (703) 205-8000 in the Washington, D.C. area.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), the Applicants respectfully petition for a one (1) month extension of time for filing a response in connection with the present application and the required fee of \$120.00 is attached herewith.

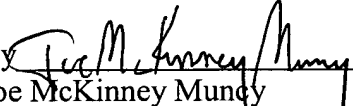
Application No. 10/786,035
Amendment dated April 25, 2006
Reply to Office Action of December 28, 2005

Docket No.: 3313-1122P

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Dated: April 28, 2006

Respectfully submitted,

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